



NSC3TM

**MEDIA BROADCASTING AND MANAGEMENT
SOLUTION FOR PROFESSIONALS**

SCALABLE & SECURED

NSION

White paper Sep 2019 Rev. 0

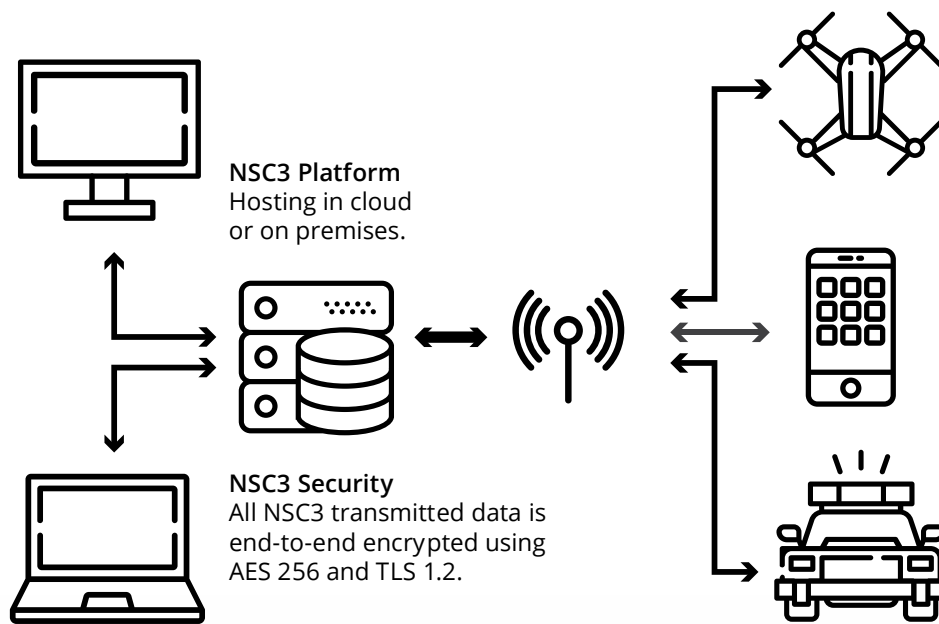
NSC3 v. 2.0, NSC-Mobile v. 2.0.2

NSC WebApp v. 2.0, NSC Drone v. 0.9

SUMMARY

NSC3™ is a NSION Ltd developed scalable and highly customizable media broadcasting solution.

The solution has been tailored for network operators, fully abiding the security and performance requirements of national emergency services. For operators NSC3 is a solid, distribute-ready service on one day deployment. For end-user it is the utility, when less than a second is a lifetime.



NSC3 solution is the entirety of the platform and software components for a wide range of mobile and wearable devices, drones and vehicles.

NSC DRONE

NSC Drone is a UAV client for airborne operations and flight control. It is designed to provide the pilot with all the necessary information for operational and situational awareness.

NSC Drone combines the tools for flying the drone as well as operating its sensors. Pre-flight settings can be adjusted for specific circumstances or operations.

NSC Drone is the major focal point of R&D. We continuously develop its capabilities in cooperation with our partners and customers.

System requirements

internet connected device compatible with manufacturer technology (SDK etc.)

Devices

UAV

Supported and recommended technology and configurations

DJI-drones, MAVIC 2, MAVIC PRO series, MATRICE 100, MATRICE 200 series, MATRICE 600 PRO

Crystal Sky display/tablet, DJI Model RC1A



NSC IOT

NSC IoT is sensor data client mainly for vehicle operated and mounted or static sources.

System requirements

IP or PoE camera and sensors, USB & embedded cameras

Devices

Vehicle cameras, fixed or mounted sensor data sources with operating system support.

Supported and recommended technology and configurations

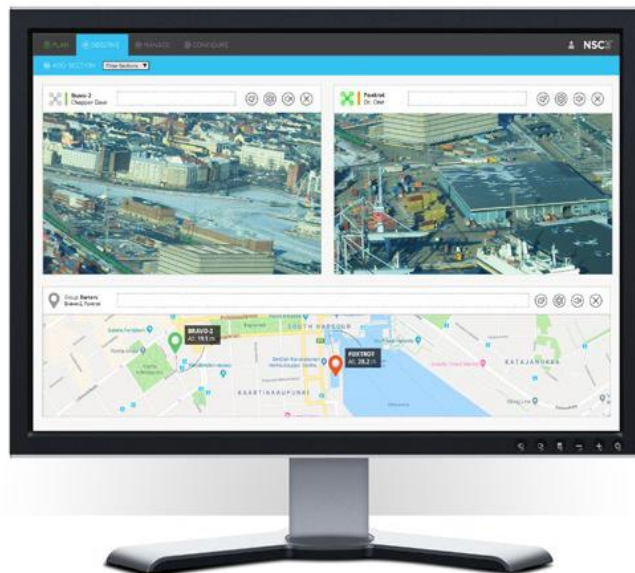
Hikvision, Dahau, Niceview (Milestone, Bosch, Ernitec, Canon + most major manufacturers)



NSC WEBAPP

NSC WebApp is the main body and the communications hub from which NSC3 operates from. It's accessible with a web browser and consists of several functions designed to plan and execute tactical level operations. It provides Mission Control with its own organization structure.

Playback, Archive and Distribute (sharing) are the main features available for the video stream management.



System requirements

Internet, Browser

Devices

Browser Interface (Chrome, Firefox, MS Edge)

Supported and recommended technology and configurations

iOS, Android, Windows

NSC MOBILE



NSC Mobile is the personal level sensor data source client, designed to be used in devices such as mobile phones, wearable cameras and other hand held devices and accessories.

System requirements

Operating system: iOS (under development – available late 2019), Android (version. 5.0+)

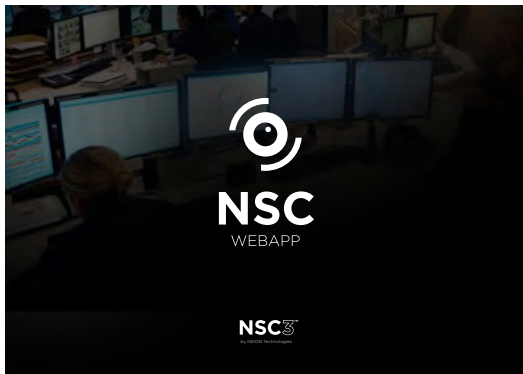
Devices

Mobile phone, wearable cameras (UVC), other OS supported devices

Supported and recommended technology and configurations

Currently: Samsung A & S –series mobile phones & tablets

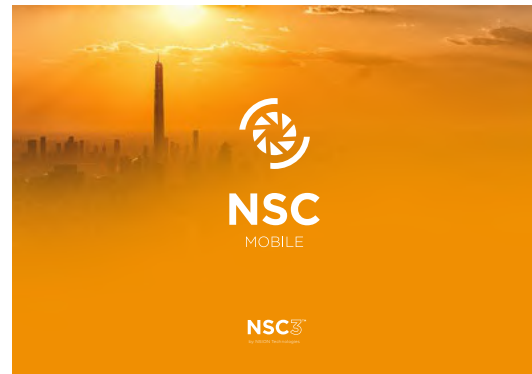
NSC SOLUTION



NSC WEBAPP

WebApp solution for mission control and operational command

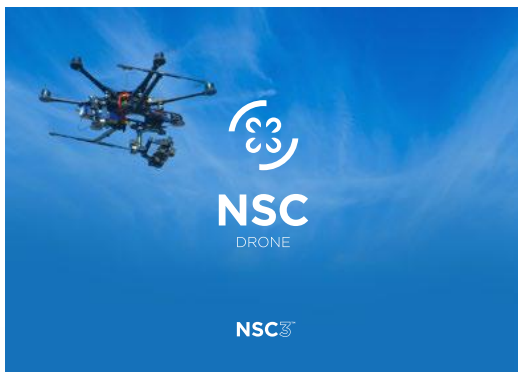
- Device video, audio & location
- Remote command
- Voice channel for users
- Instant or frame by frame replay
- Groups / device administration
- Video storage management



NSC MOBILE

Mobile solution for personal level operational broadcasting

- Group & user broadcast, Push to Talk, Messages
- Support for peripheral video / camera
- Support for Augmented Reality integration



NSC DRONE

Mission control for remote controlled unit operations

- RC unit video, audio & location
- Flight radar enables drone activity and flight plans / paths
- Users, groups and drone view management



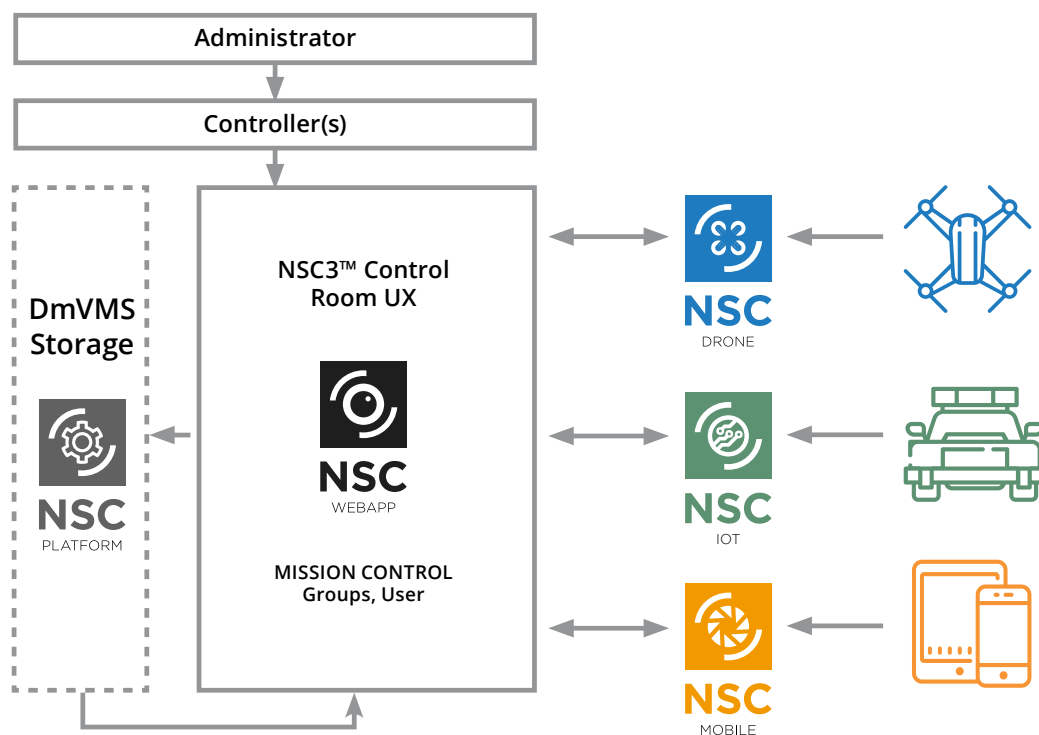
NSC IOT

Connects IoT devices to NSC3 for broadcasting

- IoT-core with minimal hardware requirements for basic functionality for variety of devices.

NSC PLATFORM

NSC Platform is the server-side architecture required to run NSC3. It provides the data storage for sensor data streams and connects to Mission Controls.



Devices

Private or Public Cloud Service / Server (PaaS, SaaS)

Supported and recommended technology and configurations

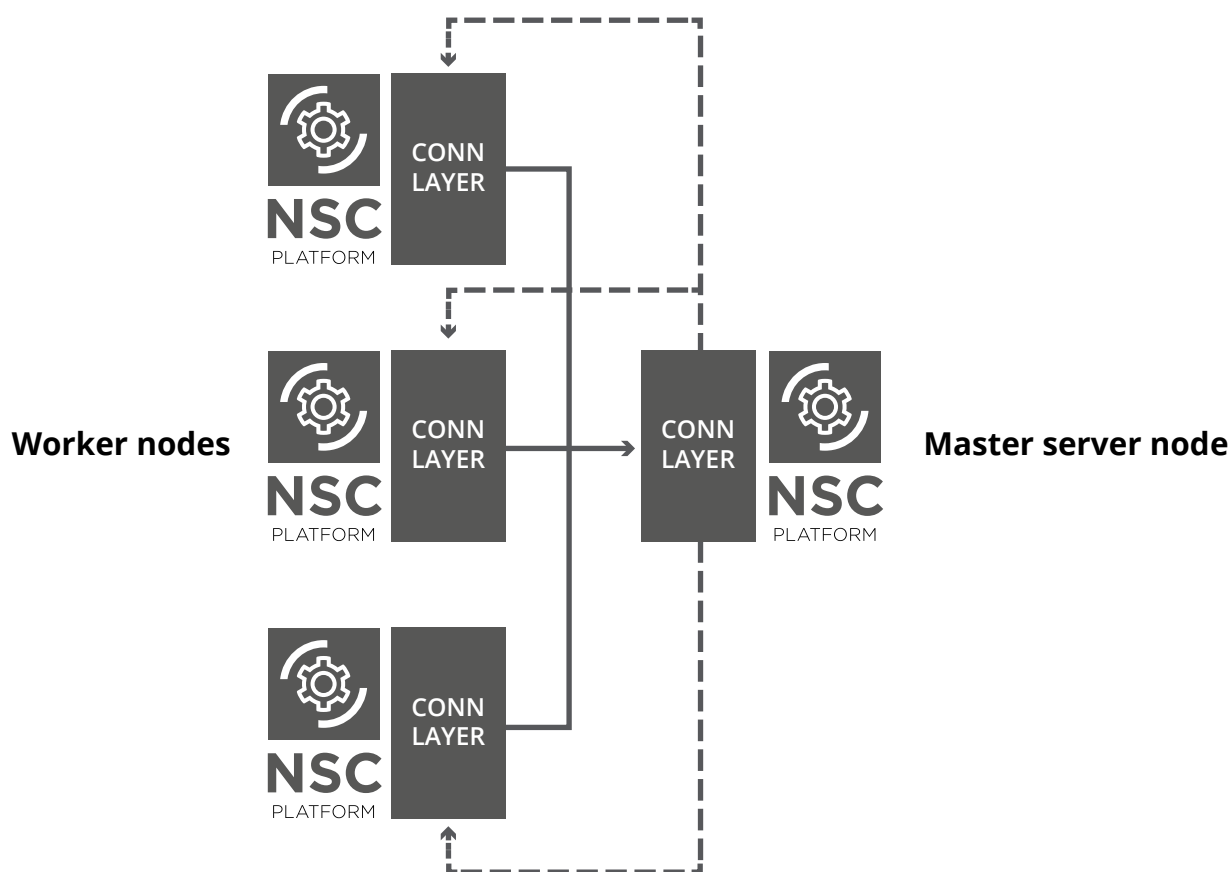
Deployment specs version 18.1.2018 (current version)

Recommended OS: Ubuntu 18.04 LTS. CPU, RAM, Disk according to usage.

Multiple licensing models are supported: runtime licensing by number of registered devices, 30 days pilot license etc.

Overview of NSC3 Cluster

NSC Cluster Solution provides capabilities for vertical, horizontal scalability and high availability features. Also cluster solution enables features to support continuous delivery models.



Worker Nodes, system requirements	
Network	1GB/1GB
CPU	8vCPU cores processor
RAM	8GB
Disk	100GB + 100GB allocations preferably SSD grade
Operating System	Ubuntu 18.04 LTS

Master Node, system requirements	
Network	1GB/1GB
CPU	8vCPU cores or dedicated 8 core processor
RAM	16GB
Disk	10TB + 1TB allocations preferably SSD grade
Operating System	Ubuntu 18.04 LTS

LICENSING MODELS

NSC3™ 2.0	Mission	Teams	Enterprises	Government
Installation	"SaaS (cloud)"	"SaaS (cloud)"	"SaaS / PaaS (cloud/privatecloud/hybrid)"	"PaaS (private cloud/hybrid)"
Maximum organizations	1	5	10+	10+
Maximum devices	500	5000	unlimited	unlimited
NSC3™ system SDK			(x)	x
NSC3™ system API (C2 and VMS system integration)			x	x
NSC3™ system API for SSO systems			(x)	x
Inter organizational mission control			x	x
Dynamic Organization Management		x	x	x
Dynamic Team Management	x	x	x	x
Automatic system Log Syncing	x	x	x	x
Real-Time system Telemetry Info				
Drone flight data (Speed, direction, altitude)	x	x	x	x
Mobile device telemetry and sensor data	x	x	x	x
True Real-Time Live connection				
Secured data on the move and rest	In mission	In mission	In mission and between teams	In mission and between organizations
Video Audio Chat GIS -data GIS - device tracking data Fly Zone Management	x	x	x	x
Media and Data Storage and system log library	24h	7 - days	According to contract	According to contract
Mission pre-Planning	-		x	x

Security

All communication between NSC3 SDKs (Java (mobile and IoT terminals), javascript (web), C++ (IoT and embedded) and NSC3 backend is encrypted. Broadcasting devices form sockets between terminals and backend. Firstly, communication inside socket is secured on application level using AES-256 encryption.

TLS / HTTPS connections are terminated on backend gateway, making certificate change an easy operation. Headers specified in detail at Stream-In TCP Sockets.

Communication inside websocket is secured using TLS1.2 / HTTPS. In order for terminal to open websocket, one must have proper access token from NSC Auth Service. Access is checked with each request inside socket against provided access token. Connections with invalid access token are terminated. Communication over REST apis with server, Http requests are transferred over TLS1.2 / HTTPS. Each request must have valid access token from NSC Auth Service. Platform gateway forwards requests to appropriate services, denying all requests to undetermined locations.



NSION is a major technology innovator in the growing sector of government related high security video and data management market. One of the biggest challenges is to optimize data security and speed in video data transferring in complex life critical field operations. NSION solves the problems with a unique high throughput platform, which enables modular integration of command and control systems to multiple different video production technologies.